

Attorney Docket No.: RU-0175
Inventors: Eric Lam
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the claims:

The claims have been amended as follows:

25.(amended) A method for inserting a heterologous DNA molecule into a pre-determined location on a plant genome, which comprises;

a) transforming a sample of plant cells containing the genome with the DNA construct of Claim 24, to produce a substrate-transformed cell line;

b) transforming an equivalent sample of plant cells with a gene encoding a transposase that specifically acts on the DNA substrates in the DNA construct of claim 24, to produce a transposase-transformed cell line;

~~b)~~c) regenerating fertile organisms from each of the transformed cell lines;

~~c)~~d) crossing the substrate-transformed line with the transposase-transformed line to produce F1 progeny;

~~d)~~e) self-pollinating the F1 progeny to produce F2 progeny; and

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~~et fl~~ growing the F2 progeny in the presence of the positive selection agent and the negative selection agent, progeny plants comprising the heterologous DNA inserted into the pre-determined location on the plant's genome being capable of surviving in the presence of both the positive selection agent and the negative selection agent.

26.(amended) The method of Claim ~~26~~ 25, which further comprises selecting a substrate-transformed cell line comprising one copy of the DNA construct per cell.

28.(amended) The kit of claim 27, which further comprises a DNA construct having a gene encoding a transposase that specifically acts on the DNA substrates in the DNA construct. of ~~claim 27.~~

29. (amended) A method for activation tagging of a plant genome to create variants displaying a desired phenotype, which comprises:

a) transforming a sample of plant cells containing the genome with the DNA construct of claim 1 or claim 24, to produce a substrate-transformed cell line;

b) transforming an equivalent sample of plant cells with a gene encoding a transposase that specifically acts on the

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DNA substrates in the DNA construct of claim 1, to produce a transposase-transformed cell line;

~~b+c)~~ regenerating fertile organisms from each of the transformed cell lines;

~~c+d)~~ crossing the substrate-transformed line with the transposase-transformed line to produce F1 progeny;

~~d+e)~~ self-pollinating the F1 progeny to produce F2 progeny; and

~~e+f)~~ growing the F2 progeny under conditions predetermined to select for the desired phenotype in the plant.

32. The kit of claim ~~32~~ 31, which further comprises a DNA construct having a gene encoding a transposase that specifically acts on the DNA substrates in the DNA construct. ~~of claim 31.~~